In the United States Patent and Trademark Office

In Re Application of:	Yang, et al.	Examiner:	Cynthia Hamilton
Serial No.:	09/898,152	Art Unit:	1752
Filing Date:	July 3, 2001	Docket No.:	2156-188J
Title:	Laser Imaged Printing Plates		

Declaration of Rustom Kanga

I, Rustom Kanga, hereby declare:

1. I have over 13 years of experience in research and development in the area of flexographic printing plate construction, including considerable background in the area of laser imaged printing plates containing a photopolymerizable layer and a laser ablatable layer.

2. I am a co-inventor of the inventions described in the above noted patent application and am employed by the assignee of this application.

3. I received a B.S. (Tech.) degree in 1983 from the University Department of Chemical Technology, Bombay University and a Ph.D degree in 1988 from the University of Florida.

4. I have worked in the area of researching and developing photopolymers and fabrication processes for printing plates for over 13 years. I have also worked with lasers for imaging printing plates and laser-imageable printing plates for over 12 years.

5. I have reviewed, and am an inventor of the inventions described in, the above noted patent application, the parent of which was filed in the U.S.

Patent and Trademark Office on June 25, 1993, a copy of which is appended hereto as Exhibit A. I have also reviewed the claims which are now pending in this present patent application (Serial No. 09/921,589), appended hereto as Exhibit B.

6. I consider myself to be a person having skill in the field to which the pending claims pertain, and also to be a person who had skill in this field at least as early as 1993. In fact, I am an inventor of the claimed subject matter.

7. I understand that the Patent Office has asserted that the currently pending claims contain subject matter that was not described in the June 1993 parent of this patent application in such a way as to reasonably convey the currently claimed subject matter to those skilled in the art.

8. I believe that the subject matter claimed in the pending claims was clearly described in the June 1993 parent of this application. As a person skilled in the art, upon reading the June 1993 parent of this application, it is clear that the subject matter currently claimed was reasonably described in the June 1993 patent application such that the skilled person could reasonably reproduce the invention of the currently pending claims.

This is so for at least the following reasons:

a. The June 1993 parent of this patent application describes photosensitive elements that comprise a layer that is ablatable by laser radiation and that is placed directly upon a photopolymerizable layer. The June 1993 application does not require that a particular wavelength of laser radiation, or range of wavelengths, be used and, in fact, repeatedly refers to ablation at a "selected wavelength" or

at an "appropriate wavelength" (See, for example, page 8, line 13; page 9, lines 23-24; Page 10, line 34 to page 11, line 1; page 12, line 15 and lines 19-20; and page 13, lines 5-6 of the June 1993 patent application). Consistent with this teaching, the June 1993 patent application indicates, for example, at page 14, lines 15 to 20, that the wavelength of the laser used for ablation must be such that the laser treatment ablates the ablatable layer without extensively damaging the photopolymer to an extent that it cannot subsequently be used as a printing surface.

b. The June 1993 application contains several examples using UV laser radiation to accomplish this purpose. However, laser wavelengths outside the UV range are also exemplified. For example, Example 3 clearly describes ablation imaging using lasers emitting in the IR range, specifically YAG and CO_2 lasers. This example clearly describes a photosensitive element comprising:

(1) a photopolymerizable layer (page 18, line 30) – the commercially available KOR photopolymer used in Example 3 comprises 1,6–hexanediol diacrylate and 1,6-hexanediol dimethacrylate as the monomers;

(2) an infrared ablatable layer in direct contact with the photopolymerizable layer (page 15, lines 1-9 and page 18, line 31, through page 19, line 2) comprising:

(a) a UV absorbing material (page 15, line 9);

(b) a binder (i.e. Macromelt® 6900, a polyamide) (page 15, line 8);

wherein the infrared ablatable layer is exposed to and ablated by an infrared laser (i.e. a CO_2 laser).

Example 3 concludes with the following sentence:

"Thus, it was seen that the basic idea of the laser-imaged printing plate was demonstrated..."

In addition Table II (1993 patent application, page 20) clearly reports successful results. Although runs 2, 5 and 6 in Table II report that not enough ablation was achieved, the result achieved was workable and could easily be optimized by adjusting the power of the laser. Further runs 8 and 12 reported full ablation and, particularly run 12, a completely workable result. The issue of unevenness of the plate surface is again the subject of mere slight modification to the laser power.

In fact as an inventor I have carried out these minor modifications to the laser power and produced excellent results as later discussed herein and as described in Exhibits C to G. Further, with minor modifications to the power of the laser, excellent results were also achieved as noted in the above-described Exhibits.

c. Claims 1-15, which were originally filed with the June 1993 application, were not limited to lasers operating at a particular wavelength or range of wavelengths but instead to the use of a laser at a **selected** wavelength.

9. The June 1993 patent application also clearly indicates that the ablatable layer comprises a UV absorbing material. This UV absorbing material allows the ablatable layer to act as a mask to the UV flood lamps that are

used, after ablation occurs, to polymerize the desired portions of the photopolymerizable layer. In the examples of the June 1993 patent application the preferred UV absorber is Uvinul™. Uvinul™ is in fact also an IR absorber, as most materials are. The UV absorber is mixed with a binder, in this case a polyamide (Macromelt® 6900) (see page 11, lines 2-5), to form the infrared ablatable layer.

10. As a person skilled in the art to which this invention pertains, I know that most materials are both UV and infrared absorbers. I also know that the UV absorbers described in my invention, including Uvinul™, are both UV and infrared absorbers.

11. The June 1993 patent application states that "UV flood lamps normally provide the light for curing" (page 11, lines 26-27), and indicates that the presence of a UV absorber in the ablatable layer imparts UV opacity to the layer (page 9, lines 31-33). The June 1993 patent application further states that the spectral range of the flood-exposure lamps used "in most applications" is 300-400 nm, that the UV absorber "typically should be active in this range", and that an alternative way of stating this is to say that the UV absorber must have a high extinction coefficient "in the spectral output range of the developer lamps" (page 10, lines 5-11). A UV absorber as described in the specification of the June 1993 patent application, is a material that absorbs the radiation used during the curing process, giving the ablation layer opacity to such radiation. A person skilled in the art would know that the UV absorber may also absorb IR radiation, as almost all materials do. Such is the case with all of the UV absorbers described in the June 1993 application (page 10, lines 16-33) (i.e., the materials absorb both UV and IR radiation). This would be apparent to any person skilled in the art.

12. Claim 15 is one of the independent claims pending in the instant application. This claim is clearly supported by the June 1993 parent application as follows:

A process for making a photosensitive element comprising the steps of:

•	providing a photosensitive element comprising:	page 3, lines 3-18.
	a) a backing layer	page 3, lines 7-9.
	b) photopolymerizable material on the backing layer	page 3, lines 9-13 .
	c) ablation layer comprising	page 11, lines 2-5 and 18-24.
	i) radiation absorbing material	page 11, lines 6-16.
	ii) at least one binder which is selected from the group consisting of polyacetals, polyacrylics, polyamides, polyimides, polybutylenes, polycarbonates, polyesters, polyethylenes, polyphenylene ethers, and polyethylene oxides;	page 11, line 29 through page 12, line 3.
	slip film in direct contact with photopolymerizable material	page 15 , lines 1-22.
	slip film ablatable from the surface of the photopolymerizable layer upon exposure to infrared laser radiation;	page 14, lines 15-20.

• ablating said ablation layer using a laser, thereby providing ablated and unablated areas forming an image; and	page 14, lines 15-20.
• flood exposing said ablated element to UV light without a negative, thereby curing said photopolymerizable layer in areas under ablated areas of said ablation layer.	page 14, lines 15-20

Specific support for the other claim elements has been previously noted herein. In addition, independent claim 46 contains many of the same features as claim 15 and would also be fully supported by the June 1993 parent application. As can be seen from the June 1993 parent application, the invention described therein clearly comprises doping a slip film layer with a UV absorber and then ablating the layer with a laser at a selected power and wavelength to create an in situ mask (see page 14, lines 15-20). The ablation layer is clearly disclosed as comprising a binder selected from the group consisting of polyacetals, polyacrylics, polyamides, polyimides, polybutylenes, polycarbonates, polyesters, polyethylenes, polyphenylene ethers, and polyethylene oxides (see page 11, line 29 through page 12, line 3). Clearly each and every element of pending claim 15 (and its dependent claims) is supported and enabled by the specification.

13. I further understand that the Patent Office has rejected the currently pending claims of this application under 35 U.S.C §102(e) and/or 35 U.S.C. §103(a) in view of U.S. Patent No. 6, 238, 837 (the '837 Patent). This rejection is not correct since I had possession of the invention claimed in the currently pending claims far before the filing date of the '837 Patent as described in Exhibits C through G. Each of Exhibits C through G is dated prior to the June 1993 filing date of this application, but the dates have been redacted in order to maintain the secrecy of the date of my invention. Attachments C through G clearly show full

completion of the invention described in the currently pending claims prior to the June 1993 filing date of this patent application as noted below:

a) Exhibit C, dated before the June 1993 effective filing date of this application, discusses the doping of a slip layer with a UV absorber (i.e., mixing the absorber with a binder) to create a laser ablatable layer to directly image a printing plate.

b) Exhibit D, dated before the June 1993 effective filing date of this application, discusses various possible laser ablatable layers, including a layer comprising carbon black as the UV absorber. (A person skilled in the art at the time the invention was made would know that carbon black is usable as an IR absorber.)

c) Exhibit E, dated before the June 1993 effective filing date of this application, discusses a successful YAG laser ablation of a laser ablatable layer on a photopolymerizable layer.

d) Exhibit F, dated before the June 1993 effective filing date of this application, discusses successful ablation of an IR ablatable layer on a photopolymerizable layer (EPIC) using YAG and CO_2 lasers. **Further the obvious effects of variations in laser power are discussed.**

e) Exhibit G, dated prior to the June 1993 effective filing date of this application, clearly reveals the successful ablation of an IR ablatable layer with a CO_2 laser emitting in the IR range. The IR ablatable layer comprises a UV absorber (Uvinul™ D-50) and an IR absorber (Uvinul D-50) in a polyamide binder (Macromelt® 6900). The IR ablatable layer is placed directly on the

photopolymerizable layer (Flexlight KOR). The Exhibit concludes with the following:

> "The ablated KOR plate can be imaged in UV exposure unit without using a negative and get a great image quality plate".

14. Thus the invention currently claimed in the pending application was clearly and effectively disclosed in the specification and claims filed on June 25, 1993 and was clearly in my possession prior to June 25, 1993.

15. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of this application or any patent issuing thereon.

Rustom Kanga

Date: 8/1/2003